



**NEW ENGLAND
COMMON ASSESSMENT PROGRAM**

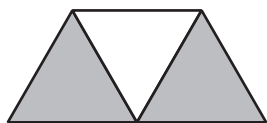
**Released Items
Support Materials
2009**

**Grade 3
Mathematics**

NECAP 2009 RELEASED ITEMS
GRADE 3 MATH

N&O 2.1 Demonstrates conceptual understanding of rational numbers with respect to: whole numbers from 0 to 199 using place value, by applying the concepts of equivalency in composing or decomposing numbers (e.g., $34 = 17 + 17$; $34 = 29 + 5$); and in expanded notation (e.g., $141 = 1 \text{ hundred} + 4 \text{ tens} + 1 \text{ one}$ or $141 = 100 + 40 + 1$) **using models, explanations, or other representations**; and **positive fractional numbers** (benchmark fractions: $a/2$, $a/3$, or $a/4$, where a is a whole number greater than 0 and less than or equal to the denominator) as a part to whole relationship in area and set models where the denominator is equal to the number of parts in the whole **using models, explanations, or other representations**.

- 1 Look at this figure.



What fraction of the figure is shaded gray?

- ☐ A. $\frac{1}{2}$
- ☐ B. $\frac{2}{3}$
- ☐ C. $\frac{2}{1}$
- ☐ D. $\frac{3}{2}$

NECAP 2009 RELEASED ITEMS
GRADE 3 MATH

N&O 2.1 Demonstrates conceptual understanding of rational numbers with respect to: whole numbers from 0 to 199 using place value, by applying the concepts of equivalency in composing or decomposing numbers (e.g., $34 = 17 + 17$; $34 = 29 + 5$); and in expanded notation (e.g., $141 = 1 \text{ hundred} + 4 \text{ tens} + 1 \text{ one}$ or $141 = 100 + 40 + 1$) **using models, explanations, or other representations**; and **positive fractional numbers** (benchmark fractions: $a/2$, $a/3$, or $a/4$, where a is a whole number greater than 0 and less than or equal to the denominator) as a part to whole relationship in area and set models where the denominator is equal to the number of parts in the whole **using models, explanations, or other representations**.



2 Which is another way to write 135?

- ☐ A. 1 ten + 35 ones
- ☐ B. 1 hundred + 35 tens
- ☐ C. 13 tens + 5 ones
- ☐ D. 13 hundreds + 5 ones

**NECAP 2009 RELEASED ITEMS
GRADE 3 MATH**

N&O 2.2 Demonstrates understanding of the relative magnitude of numbers from 0 to 199 by ordering whole numbers; by comparing whole numbers to each other or to benchmark whole numbers (10, 25, 50, 75, 100, 125, 150, or 175); by demonstrating an understanding of the relation of inequality when comparing whole numbers by using “1 more”, “1 less”, “10 more”, “10 less”, “100 more”, or “100 less”; or by connecting number words and numerals to the quantities they represent using models, number lines, or explanations.

- 3** Mrs. Linz gives piano lessons to 13 students. She gives drum lessons to 3 students. Which sentence is true?
- ☐ A. Mrs. Linz gives 1 more piano lesson than she gives drum lessons.
 - ☐ B. Mrs. Linz gives 1 fewer piano lesson than she gives drum lessons.
 - ☐ C. Mrs. Linz gives 10 more piano lessons than she gives drum lessons.
 - ☐ D. Mrs. Linz gives 10 fewer piano lessons than she gives drum lessons.

NECAP 2009 RELEASED ITEMS
GRADE 3 MATH

N&O 2.3 Demonstrates conceptual understanding of mathematical operations involving addition and subtraction of whole numbers by solving problems involving joining actions, separating actions, part-part whole relationships, and comparison situations; and addition of multiple one-digit whole numbers.



- 4 Katrina has already done 18 sit-ups. She needs to do 30 sit-ups altogether.

How many more sit-ups does Katrina need to do?

- ☐ A. 12
- ☐ B. 18
- ☐ C. 22
- ☐ D. 48

**NECAP 2009 RELEASED ITEMS
GRADE 3 MATH**

N&O 2.5 Demonstrates understanding of monetary value by adding coins together to a value no greater than \$1.99 and representing the result in dollar notation; making change from \$1.00 or less, or recognizing equivalent coin representations of the same value (values up to \$1.99).

- 5** Cindy had \$1.00. Then she bought a pencil for \$0.37. How much money does she have now?

☐ A.



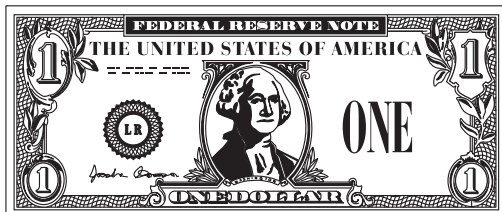
☐ B.



☐ C.




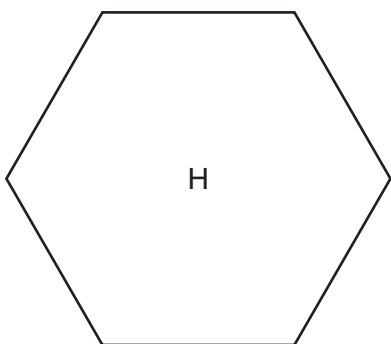
☐ D.



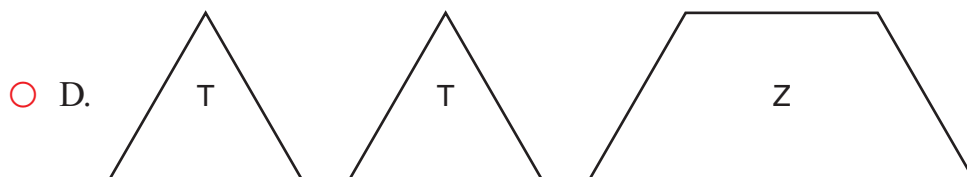
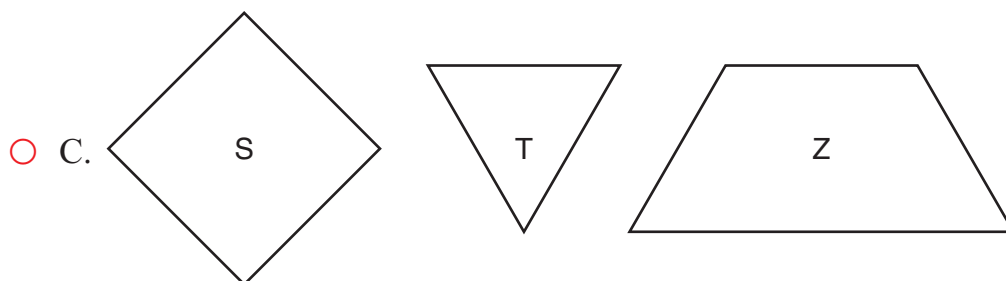
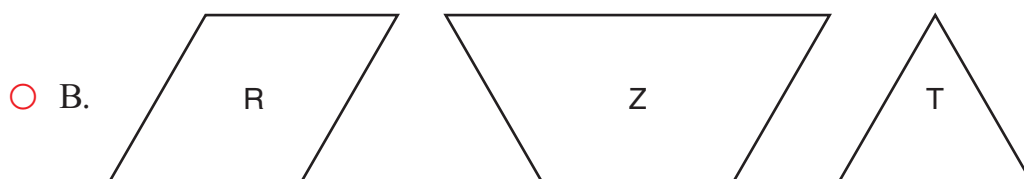
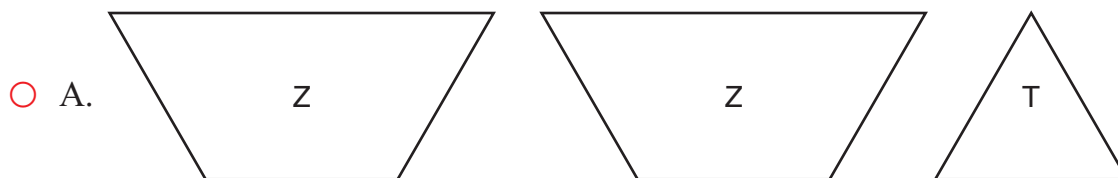
NECAP 2009 RELEASED ITEMS
GRADE 3 MATH

G&M 2.1 Uses properties, attributes, composition, or decomposition to sort or classify polygons or objects by a combination of two or more non-measurable or measurable attributes.

- 6 Bobby used three shapes to make the hexagon below. 



Which three shapes did Bobby use?

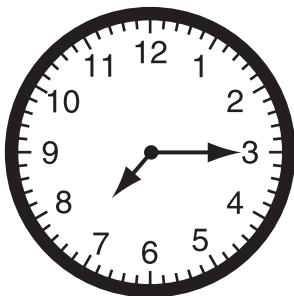


NECAP 2009 RELEASED ITEMS
GRADE 3 MATH

G&M 2.7 Measures and uses units of measures appropriately and consistently, and makes conversions within systems when solving problems across the content strands.

- 7 Which clock shows 15 minutes after 7 o'clock?

☐ A.



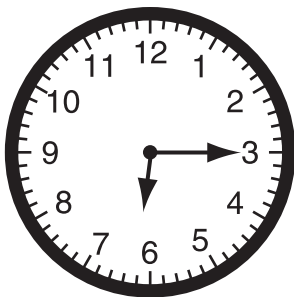
☐ B.



☐ C.



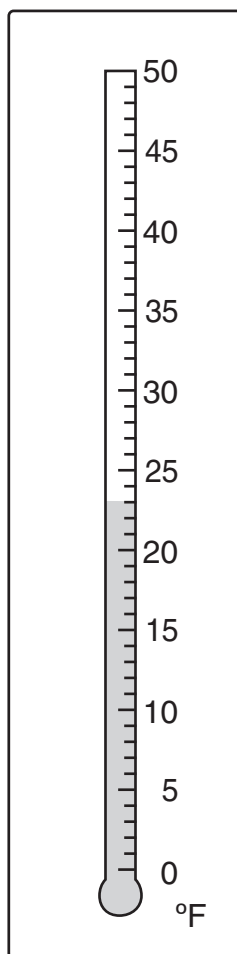
☐ D.



NECAP 2009 RELEASED ITEMS
GRADE 3 MATH

G&M 2.7 Measures and uses units of measures appropriately and consistently, and makes conversions within systems when solving problems across the content strands.

- 8 Look at this thermometer.



What temperature does this thermometer show?

- ☐ A. 21°F
- ☐ B. 22°F
- ☐ C. 23°F
- ☐ D. 24°F

NECAP 2009 RELEASED ITEMS
GRADE 3 MATH

F&A 2.4 Demonstrates conceptual understanding of equality by finding the value that will make an open sentence true (e.g., $2 + \square = 7$). (limited to one operation and limited to use addition or subtraction)

- 9 Look at this number sentence.

$$11 - \square = 8 - 2$$

What number makes this number sentence true?

- ☐ A. 1
- ☐ B. 3
- ☐ C. 5
- ☐ D. 6

DSP 2.1 Interprets a given representation (pictographs with one-to-one correspondence, line plots, tally charts, or tables) to answer questions related to the data, or to analyze the data to formulate conclusions. (IMPORTANT: *Analyzes data consistent with concepts and skills in M(DSP)–2–2.*)

- 10 The tally chart below shows the number of cups of juice served at a class party.

Cups of Juice

Apple	
Grape	
Orange	
Cranberry	

How many cups of juice were served?

- ☐ A. 4
- ☐ B. 7
- ☐ C. 15
- ☐ D. 17

**NECAP 2009 RELEASED ITEMS
GRADE 3 MATH**

N&O 2.3 Demonstrates conceptual understanding of mathematical operations involving addition and subtraction of whole numbers by solving problems involving joining actions, separating actions, part-part whole relationships, and comparison situations; and addition of multiple one-digit whole numbers.



- 11** Mrs. Thompson has some puzzles. She gave 38 puzzles to her students. Now she has 16 puzzles left. How many puzzles did Mrs. Thompson start with?

Scoring Guide

Score	Description
1	for correct answer, 54
0	Response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.
Blank	No response

NECAP 2009 RELEASED ITEMS
GRADE 3 MATH

SCORE POINT 1
(EXAMPLE A)



- 11 Mrs. Thompson has some puzzles. She gave 38 puzzles to her students. Now she has 16 puzzles left. How many puzzles did Mrs. Thompson start with?

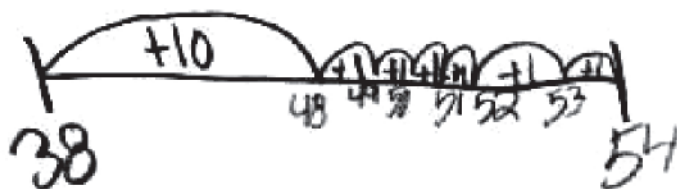
$$(54) - 38 = 16 \text{ puzzles}$$

The student's response is correct.

SCORE POINT 1
(EXAMPLE B)



- 11 Mrs. Thompson has some puzzles. She gave 38 puzzles to her students. Now she has 16 puzzles left. How many puzzles did Mrs. Thompson start with?



The student's response is correct. (Showing strategy is not required.)

NECAP 2009 RELEASED ITEMS
GRADE 3 MATH

SCORE POINT 0
(EXAMPLE A)



- 11 Mrs. Thompson has some puzzles. She gave 38 puzzles to her students. Now she has 16 puzzles left. How many puzzles did Mrs. Thompson start with?

$$\begin{array}{r} 38 \\ +16 \\ \hline 44 \end{array}$$

The student's response is incorrect.

**NECAP 2009 RELEASED ITEMS
GRADE 3 MATH**

F&A 2.1 Identifies and extends to specific cases a variety of patterns (linear and non-numeric) represented in models, tables, or sequences by extending the pattern to the next element, or finding a missing element (e.g., 2, 4, 6, __, 10).

- 12** This table shows the number of children at story time.

Story Time

Month	Number of Children
January	25
February	29
March	33
April	37
May	?

The pattern in the table continues.

How many children will go to story time in May?

Scoring Guide

Score	Description
1	for correct answer, 41
0	Response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.
Blank	No response

NECAP 2009 RELEASED ITEMS
GRADE 3 MATH

SCORE POINT 1
(EXAMPLE A)

- 12 This table shows the number of children at story time.

Story Time

Month	Number of Children
January	25
February	29
March	33
April	37
May	?

The pattern in the table continues.

How many children will go to story time in May?

41

The student's response
is correct.

NECAP 2009 RELEASED ITEMS
GRADE 3 MATH

SCORE POINT 0
(EXAMPLE A)

- 12 This table shows the number of children at story time.

Story Time

Month	Number of Children
January	25
February	29
March	33
April	37
May	?

The pattern in the table continues.

How many children will go to story time in May?

The student's response is incorrect. (Correct strategy is not sufficient for credit.)

31 because
the pattern is
plus 4 every month

NECAP 2009 RELEASED ITEMS
GRADE 3 MATH

SCORE POINT 0
(EXAMPLE B)

- 12 This table shows the number of children at story time.

Story Time

Month	Number of Children
January	25
February	29
March	33
April	37
May	?

The pattern in the table continues.

How many children will go to story time in May?

39

The student's response
is incorrect.

NECAP 2009 RELEASED ITEMS
GRADE 3 MATH

F&A 2.4 Demonstrates conceptual understanding of equality by finding the value that will make an open sentence true (e.g., $2 + \square = 7$). (limited to one operation and limited to use addition or subtraction)

- 13 Look at this number sentence.

$$\begin{array}{r} 27 \\ - \square \\ \hline 11 \end{array}$$

What number makes this number sentence true?

Scoring Guide

Score	Description
1	for correct answer, 16
0	Response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.
Blank	No response

NECAP 2009 RELEASED ITEMS
GRADE 3 MATH

SCORE POINT 1
(EXAMPLE A)

- 13 Look at this number sentence.

$$\begin{array}{r} 27 \\ - \square \\ \hline 11 \end{array}$$

What number makes this number sentence true?

$$27 - 16 = 11$$

The student's response
is correct.

NECAP 2009 RELEASED ITEMS
GRADE 3 MATH

SCORE POINT 1
(EXAMPLE B)

- 13 Look at this number sentence.

$$\begin{array}{r} 27 \\ - \boxed{16} \\ \hline 11 \end{array}$$

The student's response is correct.
(Showing work is not required.)

What number makes this number sentence true?

Handwritten student work showing a list of numbers from 1 to 27, with most numbers crossed out. The number 16 is boxed, indicating it is the correct answer.

NECAP 2009 RELEASED ITEMS
GRADE 3 MATH

SCORE POINT 0
(EXAMPLE A)

- 13 Look at this number sentence.

$$\begin{array}{r} 27 \\ - \boxed{12} \\ \hline 11 \end{array}$$

What number makes this number sentence true?

16

The student's response contains conflicting information.

NECAP 2009 RELEASED ITEMS
GRADE 3 MATH

SCORE POINT 0
(EXAMPLE B)

- 13 Look at this number sentence.

$$\begin{array}{r} 27 \\ - \square \\ \hline 11 \end{array}$$

$$\begin{array}{r} 27 \\ - 11 \\ \hline 38 \end{array}$$

The student's response is incorrect.

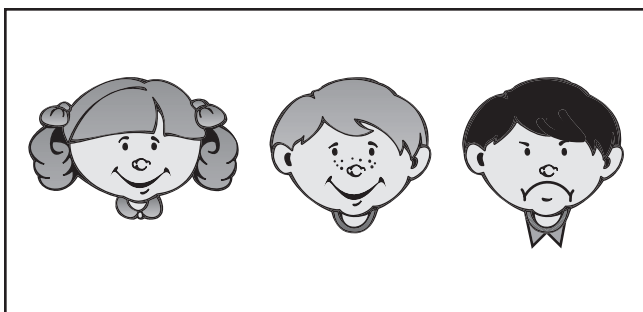
What number makes this number sentence true?

In the middle it's 38.
Thats what makes the
number sentence true.

NECAP 2009 RELEASED ITEMS
GRADE 3 MATH

N&O 2.1 Demonstrates conceptual understanding of rational numbers with respect to: whole numbers from 0 to 199 using place value, by applying the concepts of equivalency in composing or decomposing numbers (e.g., $34 = 17 + 17$; $34 = 29 + 5$); and in expanded notation (e.g., $141 = 1 \text{ hundred} + 4 \text{ tens} + 1 \text{ one}$ or $141 = 100 + 40 + 1$) **using models, explanations, or other representations**; and **positive fractional numbers** (benchmark fractions: $\frac{a}{2}$, $\frac{a}{3}$, or $\frac{a}{4}$, where a is a whole number greater than 0 and less than or equal to the denominator) as a part to whole relationship in area and set models where the denominator is equal to the number of parts in the whole **using models, explanations, or other representations**.

- 14 Look at the group of children.



a. Write a fraction that shows the part of the group that is smiling.

b. How did you get the top number in your fraction?

c. How did you get the bottom number in your fraction?

**NECAP 2009 RELEASED ITEMS
GRADE 3 MATH**

Scoring Guide

Score	Description
2	for a correct fraction with sufficient explanation given
1	for a correct fraction OR for a sufficient explanation for the numerator OR for a sufficient explanation for the denominator OR for showing some understanding of parts (smiling) to the whole (children)
0	Response is incorrect or irrelevant.
Blank	No response

Sample Responses:

Part a: $\frac{2}{3}$

Part b: Student explains that the 2 represents the two smiling faces.

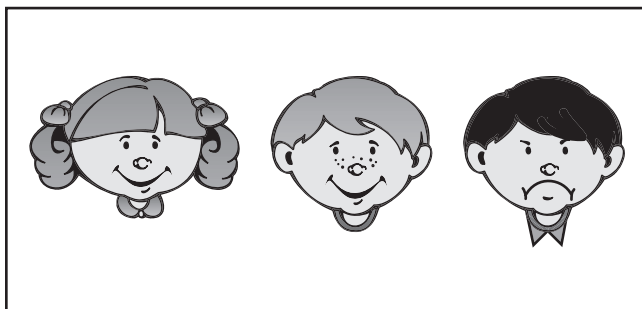
Part c: Student explains that the 3 represents the total number of faces.

Note: Students do not need to use the terms “numerator” and “denominator.”

NECAP 2009 RELEASED ITEMS
GRADE 3 MATH

SCORE POINT 2
(EXAMPLE A)

- 14 Look at the group of children.



- a. Write a fraction that shows the part of the group that is smiling.

$$\frac{2}{3}$$

a) The student's response is correct.

- b. How did you get the top number in your fraction?

I looked and
saw who was
smiling.

- c. How did you get the bottom number in your fraction?

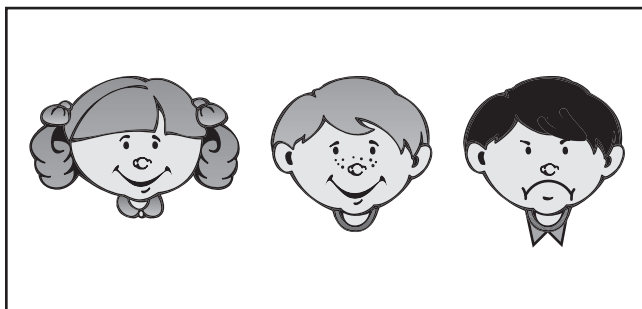
I counted the
children.

b) Sufficient explanation is given for both numerator and denominator.

NECAP 2009 RELEASED ITEMS
GRADE 3 MATH

SCORE POINT 1
(EXAMPLE A)

- 14 Look at the group of children.



- a. Write a fraction that shows the part of the group that is smiling.

$$\frac{3}{2}$$

a) The student's response is incorrect.

- b. How did you get the top number in your fraction?

because there are three children

b) The student shows understanding of part-to-whole relationship.

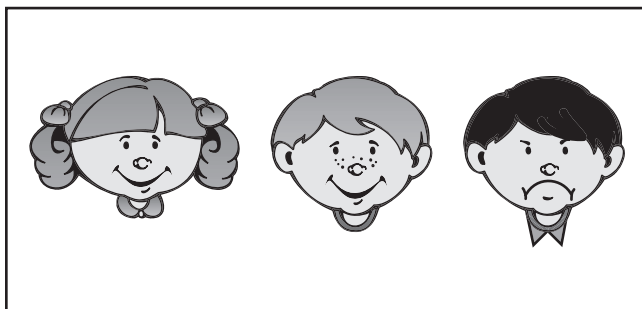
- c. How did you get the bottom number in your fraction?

because only 2 of the children are smiling

NECAP 2009 RELEASED ITEMS
GRADE 3 MATH

SCORE POINT 0
(EXAMPLE A)

- 14 Look at the group of children.



- a. Write a fraction that shows the part of the group that is smiling.

2

a) The student's response is incorrect.

- b. How did you get the top number in your fraction?

two children
are smiling.

b) The student does not show understanding of part-to-whole relationship.

- c. How did you get the bottom number in your fraction?

one kid is
not smiling.

**NECAP 2009 RELEASED ITEMS
GRADE 3 MATH**

N&O 2.5 **Demonstrates understanding of monetary value** by adding coins together to a value no greater than \$1.99 and representing the result in dollar notation; making change from \$1.00 or less, or recognizing equivalent coin representations of the same value (values up to \$1.99).



- 15** Lamar had \$1.00 for a snack. He spent \$0.65 on an apple.
- a. How much money does Lamar have now? Use a dollar sign (\$) and a decimal point (.) to write your answer.
- b. Show or name a set of coins Lamar could have now.

Scoring Guide

Score	Description
2	for correct answer in part a, \$0.35 , and a correct combination of coins in part b
1	for correct answer in part a OR for a correct combination of coins in part b OR for a correct combination of coins in part b based on an incorrect answer in part a
0	Response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.
Blank	No response

Sample Responses:

1 quarter, 1 dime
1 quarter, 2 nickels
3 dimes, 1 nickel
3 dimes, 5 pennies
7 nickels
35 pennies

NECAP 2009 RELEASED ITEMS
GRADE 3 MATH

SCORE POINT 2
(EXAMPLE A)



- 15 Lamar had \$1.00 for a snack. He spent \$0.65 on an apple.

a. How much money does Lamar have now? Use a dollar sign (\$) and a decimal point (.) to write your answer.

\$0.35

a) The student's response is correct.

b. Show or name a set of coins Lamar could have now.



b) The student showed a correct combination of coins.

NECAP 2009 RELEASED ITEMS
GRADE 3 MATH

SCORE POINT 2
(EXAMPLE B)



- 15 Lamar had \$1.00 for a snack. He spent \$0.65 on an apple.

a. How much money does Lamar have now? Use a dollar sign (\$) and a decimal point (.) to write your answer.

a) The student's response is correct.

\$0.35

b. Show or name a set of coins Lamar could have now.



b) The student showed a correct combination of coins.

NECAP 2009 RELEASED ITEMS
GRADE 3 MATH

SCORE POINT 1
(EXAMPLE A)



- 15 Lamar had \$1.00 for a snack. He spent \$0.65 on an apple.

a. How much money does Lamar have now? Use a dollar sign (\$) and a decimal point (.) to write your answer.

\$0.31

a) The student's response is incorrect.

b. Show or name a set of coins Lamar could have now.



b) The student showed a correct combination of coins based on incorrect answer in part a.

NECAP 2009 RELEASED ITEMS
GRADE 3 MATH

SCORE POINT 1
(EXAMPLE B)



- 15 Lamar had \$1.00 for a snack. He spent \$0.65 on an apple.

a. How much money does Lamar have now? Use a dollar sign (\$) and a decimal point (.) to write your answer.

a) The student's answer is not written with a dollar sign and decimal point.

b. Show or name a set of coins Lamar could have now.



b) The student showed a correct combination of coins.

NECAP 2009 RELEASED ITEMS
GRADE 3 MATH

SCORE POINT 0
(EXAMPLE A)



- 15 Lamar had \$1.00 for a snack. He spent \$0.65 on an apple.

a. How much money does Lamar have now? Use a dollar sign (\$) and a decimal point (.) to write your answer.

\$0.65

a) The student's response is incorrect.

b. Show or name a set of coins Lamar could have now.

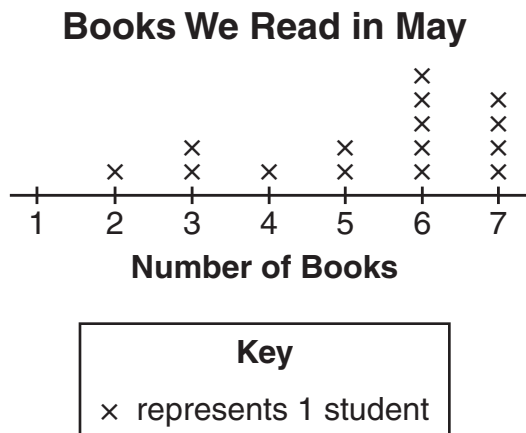


b) The student showed an incorrect combination of coins.

NECAP 2009 RELEASED ITEMS
GRADE 3 MATH

DSP 2.1 Interprets a given representation (pictographs with one-to-one correspondence, line plots, tally charts, or tables) to answer questions related to the data, or to analyze the data to formulate conclusions. (IMPORTANT: *Analyzes data consistent with concepts and skills in M(DSP)–2–2.*)

- 16 Look at this line plot.



Stella wrote this statement using the data in the line plot.

Three students read two books in May.

- a. Did Stella write a correct statement? Explain why or why not.

- b. Write your own statement using the data in this line plot.

**NECAP 2009 RELEASED ITEMS
GRADE 3 MATH**

Scoring Guide

Score	Description
2	for sufficient explanation in part a and a true statement in part b
1	for sufficient explanation in part a only OR for a true statement in part b only
0	Response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.
Blank	No response

Sample Responses:

Part a:

No, because the Xs show the number of students, not books.

No, because she confused books with people.

Yes, because more than 3 students read more than 2 books.

Part b:

One student read two books.

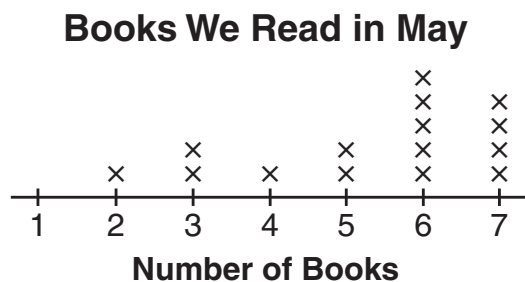
15 students read books.

All the students read more than 1 book.

NECAP 2009 RELEASED ITEMS
GRADE 3 MATH

SCORE POINT 2
(EXAMPLE A)

- 16 Look at this line plot.



Key

x represents 1 student

a) The student's explanation is sufficient.

Stella wrote this statement using the data in the line plot.

Three students read two books in May.

- a. Did Stella write a correct statement? Explain why or why not.

Stella didn't write the correct statement because looking at the data only one student read 2 books.

- b. Write your own statement using the data in this line plot.

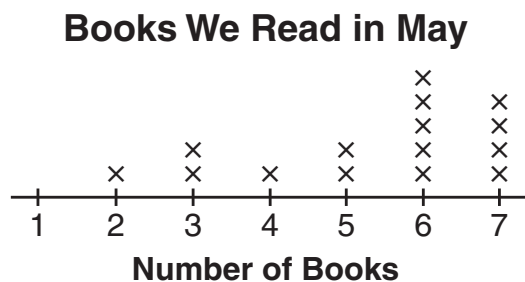
The mode is 6 books.

b) The student wrote a true statement based on the line plot.

NECAP 2009 RELEASED ITEMS
GRADE 3 MATH

SCORE POINT 1
(EXAMPLE A)

- 16 Look at this line plot.



Key

× represents 1 student

Stella wrote this statement using the data in the line plot.

Three students read two books in May.

- a. Did Stella write a correct statement? Explain why or why not.

NO it not a correct statement
because only 2 students read two
books not three

a) The student's explanation is incorrect.

- b. Write your own statement using the data in this line plot.

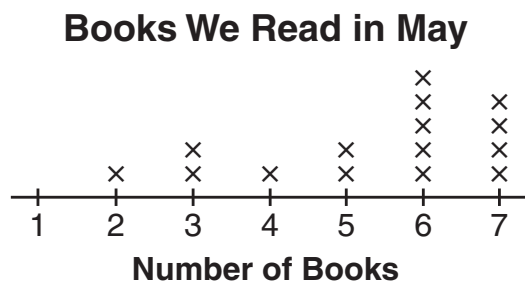
five students read six books
in May

b) The student wrote a true statement based on the line plot.

NECAP 2009 RELEASED ITEMS
GRADE 3 MATH

SCORE POINT 1
(EXAMPLE B)

- 16 Look at this line plot.



Key

× represents 1 student

Stella wrote this statement using the data in the line plot.

Three students read two books in May.

- a. Did Stella write a correct statement? Explain why or why not.

No only 1 person
read two

a) The student's explanation
is sufficient.

- b. Write your own statement using the data in this line plot.

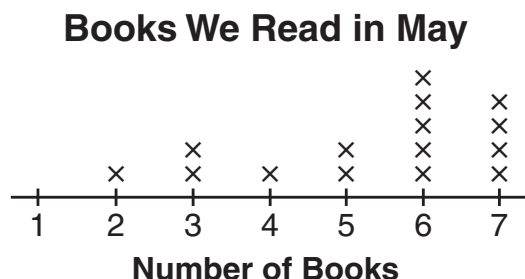
Three students
read four books.

b) The student did
not write a true
statement based
on the line plot.

NECAP 2009 RELEASED ITEMS
GRADE 3 MATH

SCORE POINT 0
(EXAMPLE A)

- 16 Look at this line plot.



Key

x represents 1 student

Stella wrote this statement using the data in the line plot.

Three students read two books in May.

- a. Did Stella write a correct statement? Explain why or why not.

yes she did. Because the
X's ment Book's and Number's
ment children

a) The student's explanation
is incorrect.

- b. Write your own statement using the data in this line plot.

5 students read 2 Books in
may.

b) The student did
not write a true
statement based
on the line plot.

Grade 3 Mathematics Released Item Information

Released Item Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
No Tools Allowed		✓		✓							✓				✓	
Content Strand ¹	NO	NO	NO	NO	NO	GM	GM	GM	FA	DP	NO	FA	FA	NO	NO	DP
GLE Code	2-1	2-1	2-2	2-3	2-5	2-1	2-7	2-7	2-4	2-1	2-3	2-1	2-4	2-1	2-5	2-1
Depth of Knowledge Code	1	2	2	1	2	2	1	1	2	2	2	2	1	3	2	3
Item Type ²	MC	MC	MC	MC	MC	MC	MC	MC	MC	MC	SA	SA	SA	SA	SA	SA
Answer Key	B	C	C	A	A	B	A	C	C	D						
Total Possible Points	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2

¹Content Strand: NO = Numbers & Operations, GM = Geometry & Measurement, FA = Functions & Algebra, DP = Data, Statistics, & Probability

²Item Type: MC = Multiple Choice, SA = Short Answer